AMENDMENT TO THE CLAIMS:

Please amend the claims as shown in the listing of the claims below.

1-432. (Previously cancelled)

433. (Previously amended) Nanoparticles having at least two types of oligonucleotides attached thereto, the oligonucleotides being present on a surface of the nanoparticles at a surface density of at least 10 picomoles/cm^2, wherein at least one type of oligonucleotides comprises recognition oligonucleotides, the recognition oligonucleotides comprising a recognition portion having a sequence complementary to at least one portion of the sequence of a nucleic acid or another oligonucleotide.

434. (Previously added) The nanoparticles of Claim 433 wherein the oligonucleotides are present on the surface of the nanoparticles at a surface density of at least 15 picomoles/cm^2.

435. (Previously added) The nanoparticles of Claim 433 wherein the oligonucleotides are present on the surface of the nanoparticles at a surface density from about 15 picomoles/cm^2 to about 40 picomoles/cm^2.

436. (Previously added) The nanoparticles of Claim 433 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

437. (Previously added) The nanoparticles of Claim 436 wherein the nanoparticles are gold nanoparticles.

438. (Previously cancelled)

439. (Previously amended) The nanoparticles of Claim 433 wherein each of the recognition oligonucleotides comprising a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles.

440. (Previously added) The nanoparticles of Claim 439 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

441. (Previously added) The nanoparticles of Claim 439 wherein the spacer portion comprises at least about 10 nucleotides.

442. (Previously added) The nanoparticles of Claim 441 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

443. (Previously added) The nanoparticles of Claim 439 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

444. (Previously amended) The nanoparticles of Claim 433 wherein at least one type of oligonucleotides comprise diluent oligonucleotides.

445. (Previously added) The nanoparticles of Claim 444 wherein the diluent oligonucleotides contain about the same number of nucleotides as are contained in the spacer portions of the recognition oligonucleotides.

446. (Previously added) The nanoparticles of Claim 445 wherein the sequence of the diluent oligonucleotides is the same as that of the spacer portions of the recognition oligonucleotides.

447. (New) A method for detecting for the presence or absence of a target nucleic acid in sample, the target nucleic acid having a sequence of at least two portions, said method comprising:

providing nanoparticles having oligonucleotides attached thereto, at least some of the oligonucleotides having a sequence complementary to at least one portion of the sequence of the target nucleic acid;

providing microspheres having oligonucleotides bound thereto, the oligonucleotides having a sequence complementary to a second portion of the sequence of the target nucleic acid and having fluorescent labels appended thereto;

providing a microporous substrate having a pore size sufficient to allow the nanoparticles to pass through the pores and to retain the microspheres on the substrate;

contacting the sample, the microspheres, and nanoparticles under conditions effective to allow the oligonucleotides on the microspheres and the nanoparticles to hybridize with the target nucleic acid and form a hybridization solution having a network structure resulting from the presence of target nucleic acid;

contacting the hybridization solution with the microporous substrate;

washing the microporous substrate; and

observing for a detectable change brought about by the formation of the network structure.

448. (New) The method of Claim 447 wherein the oligonucleotides are present on the surface of the nanoparticles at a surface density of at least 10 picomoles/cm^2.

449. (New) The method of Claim 448 wherein the oligonucleotides are present on the surface of the nanoparticles at a surface density of at least 15 picomoles/cm^2.

450. (New) The method of Claim 449 wherein the oligonucleotides are present on the surface of the nanoparticles at a surface density of from about 15 picomoles/cm^2 to about 40 picomoles/cm^2.

451. (New) The method of Claim 447 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

452. (New) The method of Claim 451 wherein the nanoparticles are gold nanoparticles.

453. (New) The method of Claim 447 wherein the oligonucleotides bound to the nanoparticles comprise at least one type of recognition oligonucleotides, each of the recognition oligonucleotides comprising a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles, the recognition portion having a sequence complementary to at least one portion of the sequence of a nucleic acid or another oligonucleotide.

454. (New) The method of Claim 453 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

455. (New) The method of Claim 453 wherein the spacer portion comprises at least about 10 nucleotides.

456. (New) The method of Claim 455 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

457. (New) The method of Claim 453 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

458. (New) The method of Claim 453 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 10 picomoles/cm^2.

459. (New) The method of Claim 458 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 15 picomoles/cm^2.

460. (New) The method of Claim 459 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of from about 15 picomoles/cm^2 to about 40 picomoles/cm^2.

461. (New) The method of Claim 453 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

462. (New) The method of Claim 461 wherein the nanoparticles are gold nanoparticles.

463. (New) The method of claim 447 wherein the oligonucleotides bound to the nanoparticles comprise:

at least one type of recognition oligonucleotides, each of the types of recognition oligonucleotides comprising a sequence complementary to at least one portion of the sequence of a nucleic acid or another oligonucleotide; and

a type of diluent oligonucleotides.

464. (New) The method of Claim 463 wherein each of the recognition oligonucleotides comprises a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles, the recognition portion having a sequence complementary to at least one portion of the sequence of the target nucleic acid.

465. (New) The method of Claim 464 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

466. (New) The method of Claim 464 wherein the spacer portion comprises at least about 10 nucleotides.

467. (New) The method of Claim 466 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

468. (New) The method of Claim 464 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

469. (New) The method of Claim 463 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 10 picomoles/cm^2.

470. (New) The method of Claim 469 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 15 picomoles/cm^2.

471. (New) The method of Claim 470 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of from about 15 picomoles/cm^2 to about 40 picomoles/cm^2.

472. (New) The method of Claim 464 wherein the diluent oligonucleotides contain about the same number of nucleotides as are contained in the spacer portions of the recognition oligonucleotides.

473. (New) The method of Claim 472 wherein the sequence of the diluent oligonucleotides is the same as that of the spacer portions of the recognition oligonucleotides.

474. (New) The method of Claim 463 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

475. (New) The method of Claim 474 wherein the nanoparticles are gold nanoparticles.

476. (New) The method of Claim 447 wherein the nanoparticles have at least two types of oligonucleotides attached thereto, the oligonucleotides being present on a surface of the nanoparticles at a surface density of at least 10 picomoles/cm^2, at least some of the oligonucleotides having a sequence complementary to at least one portion of the sequence of a nucleic acid or another oligonucleotide.

477. (New) The method of Claim 476 wherein the oligonucleotides are present on the surface of the nanoparticles at a surface density of at least 15 picomoles/cm^2.

478. (New) The method of Claim 476 wherein the oligonucleotides are present on the surface of the nanoparticles at a surface density from about 15 picomoles/cm^2 to about 40 picomoles/cm^2.

479. (New) The method of Claim 476 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

480. (New) The method of Claim 479 wherein the nanoparticles are gold nanoparticles.

481. (New) The method of Claim 476 wherein at least one type of oligonucleotides comprises recognition oligonucleotides, the recognition portion having a sequence complementary to at least one portion of the sequence of a nucleic acid or another oligonucleotide.

482. (New) The method of Claim 481 wherein each of the recognition oligonucleotides comprising a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles.

483. (New) The method of Claim 482 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

484. (New) The method of Claim 482 wherein the spacer portion comprises at least about 10 nucleotides.

485. (New) The method of Claim 484 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

486. (New) The method of Claim 482 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

487. (New) The method of any one of Claims 476 or 481 wherein at least one type of oligonucleotides comprise diluent oligonucleotides.

488. (New) The method of Claim 487 wherein the diluent oligonucleotides contain about the same number of nucleotides as are contained in the spacer portions of the recognition oligonucleotides.

489. (New) The method of Claim 488 wherein the sequence of the diluent oligonucleotides is the same as that of the spacer portions of the recognition oligonucleotides.

490. (New) The method of Claim 447 wherein the microspheres are made of latex.

491. (New) The method of Claim 237 wherein the microporous substrate is transparent.

492. (New) The method of Claim 237 wherein the microporous substrate has a white color.

493. (New) The method of Claim 237 wherein the microporous substrate allows for the detection of color due to the presence of nanoparticles.

493. (New) The method of Claim 237 wherein the detectable change is a color change observed by the naked eye.

494. (New) The method of Claim 237 wherein the detectable change is a change in a fluorescence signal.